(No Model.) 5 Sheets—Sheet 1.

L. J. BAKER

LEATHER DRESSING MACHINE.

No. 259,995. Patented June 27, 1882.

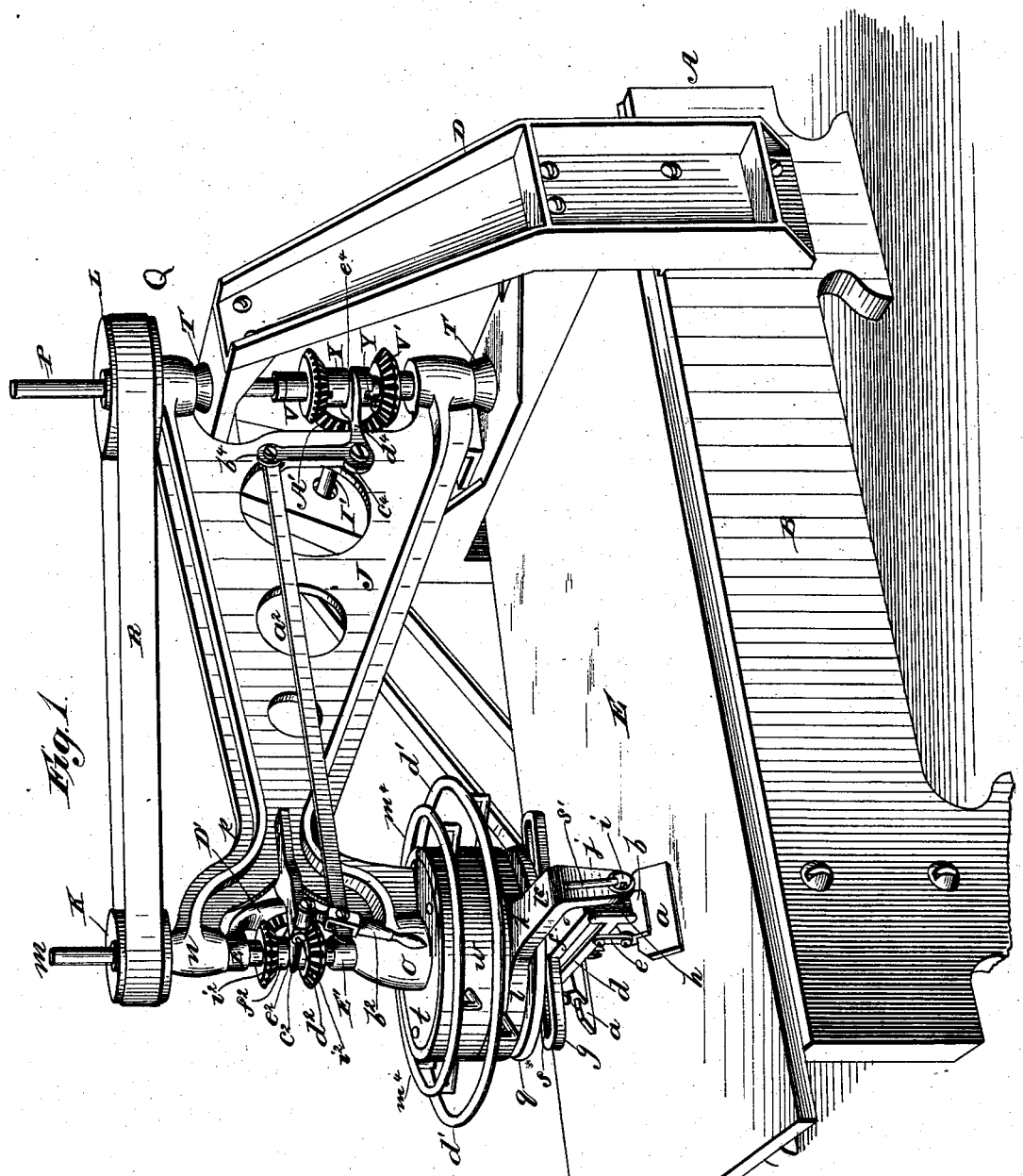

Fig. 1.

Witnesses.
Robert Everett
Edward H. Siggers.

Inventor:
Loring J. Baker.
By Wm H Babcock
Atty.

(No Model.) 5 Sheets—Sheet 2.

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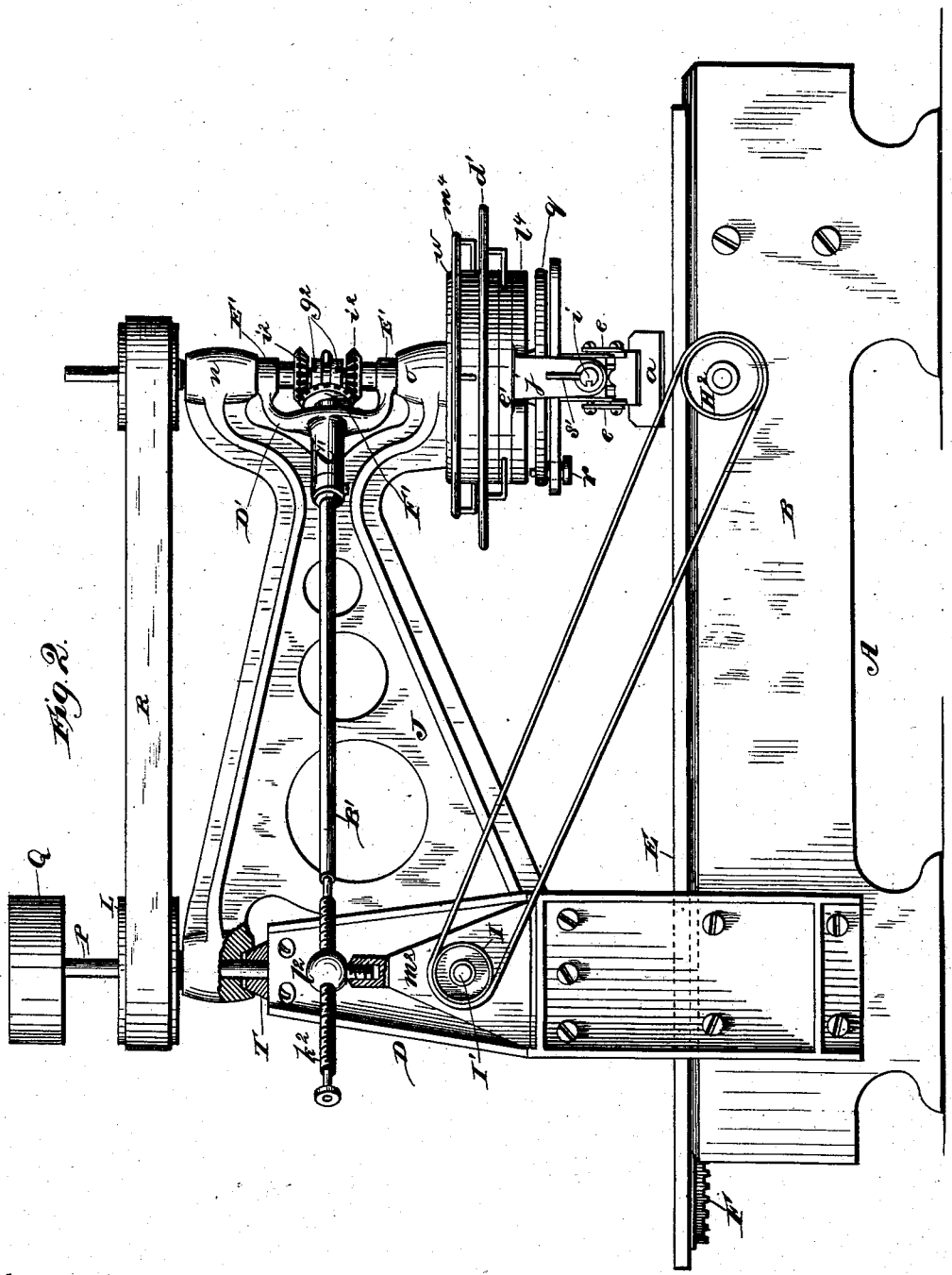

Fig. 2.

Witnesses.
Robert Ewatt.
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(No Model.) 5 Sheets—Sheet 3.

L. J. BAKER.

LEATHER DRESSING MACHINE.

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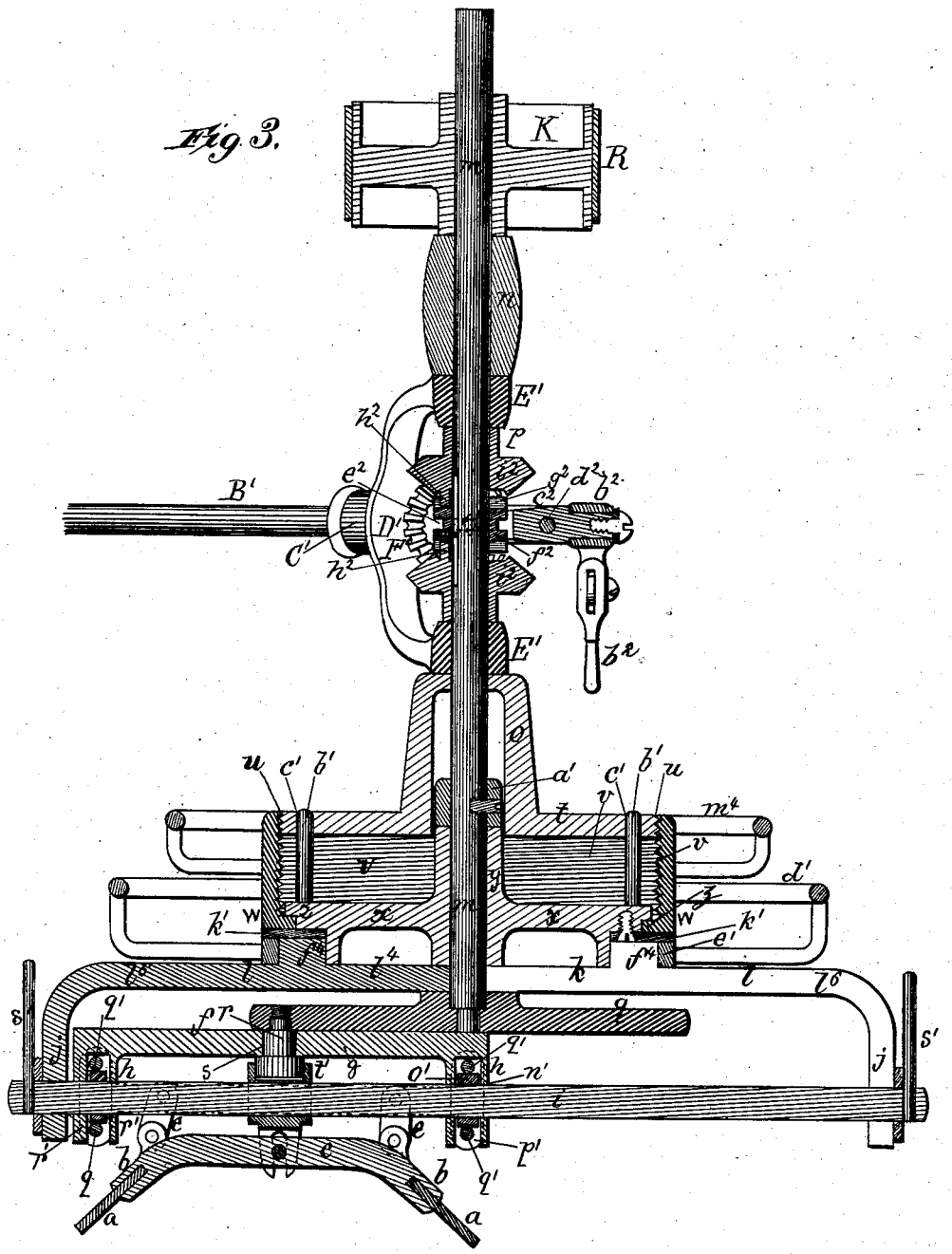
Fig 3.



Witnesses.
H. E. Lodge
Edward D. Siggers

Inventor.
L. J. Baker.
Y. Curtis. Atty.

(No Model.) 5 Sheets—Sheet 4.

L. J. BAKER.

LEATHER DRESSING MACHINE.

No. 259,995. Patented June 27, 1882.

Fig. 4.

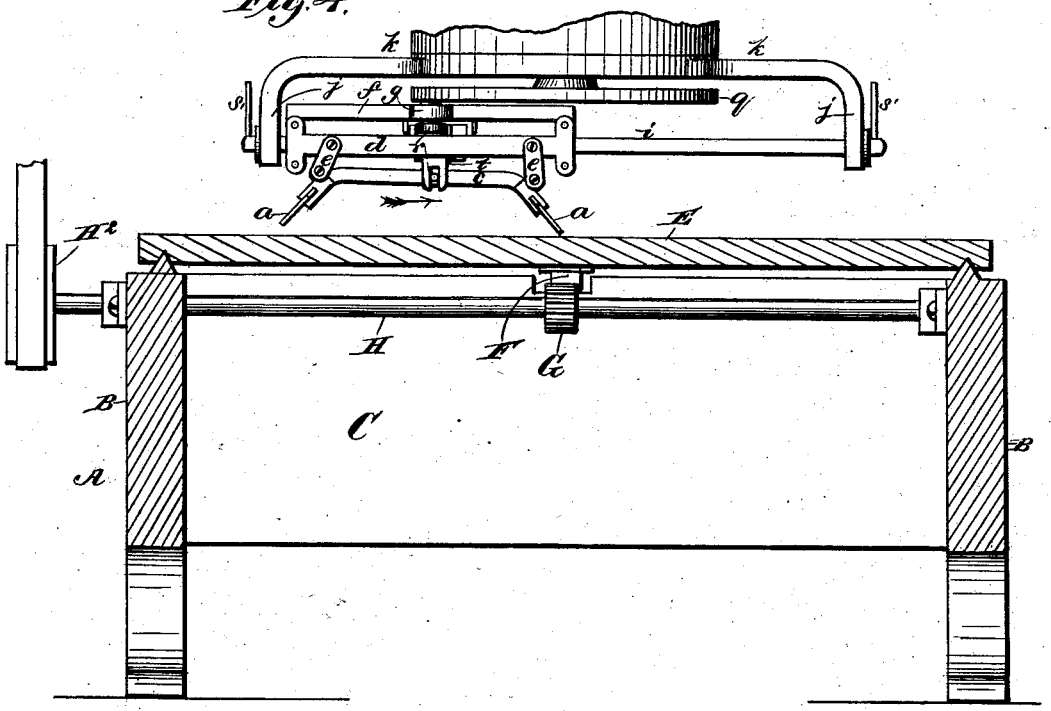


Fig. 5.

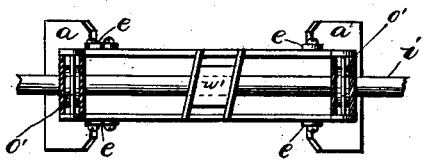
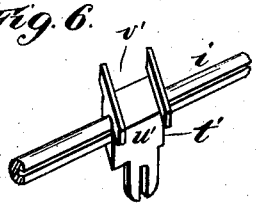


Fig. 6.



Witnesses.
Robert Everett,
Edward G. Siggers.

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Loring J. Baker.
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Atty.

(No Model.) 5 Sheets—Sheet 5.

L. J. BAKER.

LEATHER DRESSING MACHINE.

No. 259,995. Patented June 27, 1882.

Fig. 7.
Reduced.

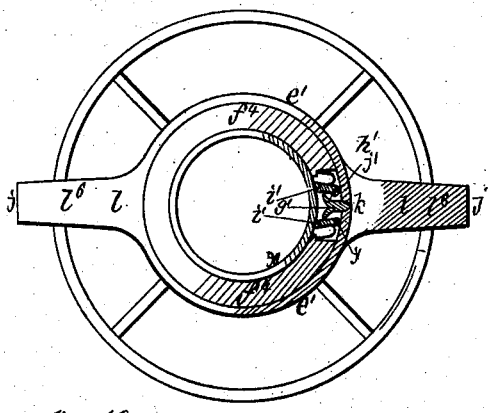


Fig. 8.
Enlarged.

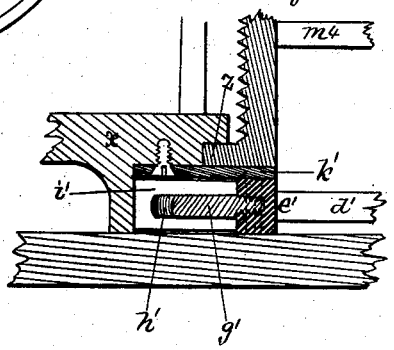


Fig. 9

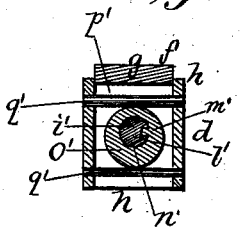


Fig. 10.

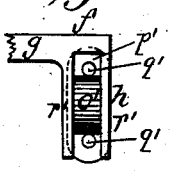


Fig. 11.

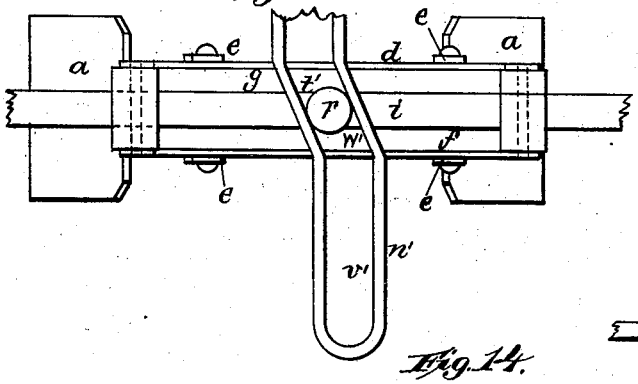


Fig. 12.
Reduced.

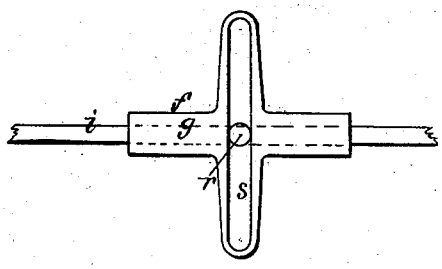


Fig. 13.

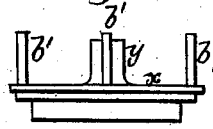
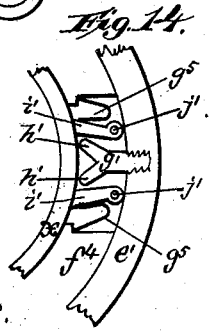


Fig. 14.



Witnesses.
F. G. Simpson
H. E. Lodge

Inventor.
L. J. Baker.
F. Curtis, Atty.

UNITED STATES PATENT OFFICE.

LORING J. BAKER, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-FOURTH TO FREDERICK CURTIS, OF SAME PLACE.

LEATHER-DRESSING MACHINE.

SPECIFICATION forming part of Letters Patent No. 259,995, dated June 27, 1882.

Application filed July 18, 1881. (No model.)

To all whom it may concern:

Be it known that I, LORING J. BAKER, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Leather-Dressing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in machines for scouring, setting, and glazing leather; and it consists in the construction and combination of parts hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 represents a perspective view of a leather-dressing machine embodying my improvements. Fig. 2 represents a side elevation of the same. Fig. 3 represents a vertical section, on an enlarged scale, of the tools and their immediate operating mechanism detached from the rest of the machine. Fig. 4. represents a detail view, partly in section, of the tools, tool-carriage, and the table, with the mechanism for moving the latter. Figs. 5, 6, 7, 8, 9, 10, 11, and 12 represent detail views of various parts of the mechanism for operating the tools, as hereinafter more particularly described. Fig. 13 represents an elevation of the head or disk *x*, and Fig. 14 represents a view on an enlarged scale of the latches.

In these drawings, A represents the frame of the machine, the same being composed of parallel side beams or housings B B, united by suitable cross-ties, C C, while upon the rear ends of those housings is erected an upright arched standard, D.

E represents the table for receiving the skins to be manipulated, the same being deposited and sliding upon ways or guides secured to the top of the housings B B, and having secured to its under side a longitudinal toothed rack, F, which engages and is driven by a pinion, G, secured to a horizontal shaft, H, disposed below the table at right angles thereto, and mounted in bearings in the said housings, the shaft H being rotated by a pulley, H^2, secured to one end of it, about which and a second pulley, I, secured to the outer end of a second horizontal shaft, I′, mounted in bearings in one side of the standard D, an endless belt travels.

J in the drawings represents a horizontal crane or beam stretching out over the table E, and pivoted at its rear end to the standard D by a vertical shaft, P, this shaft P being rotated by a pulley, Q, secured to it and a band, R, such band also passing about a pulley, K, to be hereinafter referred to.

To prevent loosening of the shaft P and to compensate for the wear upon its bearings, I interpose between it and the bearings in the standard conical bushings T T, as shown in Figs. 1 and 2 of the drawings.

The crane carries at its front end or head the dressing-tools and their immediate operative mechanism; and, as it is essential that such tools shall, with the crane, be capable of traversing the skin laterally of the table, I suspend the crane as stated in order that it may swing in the arc of a circle across such table.

To effect the movements of the table in either direction in order that the tools may operate upon a skin longitudinally of such table, I mount loosely upon the shaft P twin bevel-gears V V′, which are prevented from end-play upon the shaft by suitable means, while intermediate between these gears I mount loosely upon the same shaft a tubular hub or sleeve, X, having in each end notches Y Y, &c., to engage corresponding studs upon the inner ends of the pinions, the notched sleeve with the stud constituting a double-acting clutch similar to many now in use. The sleeve X is allowed end-play upon the shaft P, but is compelled to rotate with the latter by a spline-and-groove connection between the two.

To the inner end of the shaft I′, before named, I secure a bevel-gear, A′, which engages the two gears V V′. The sleeve X being in rotation, it is only necessary to clutch it to one or the other of the gears V V′ in order to move the table in the desired direction upon its ways, as the rotation of either gear effects, by means

of the shafts P and I′, pulleys I and H², pinion G, and rack F, traverses of the table upon such ways.

To slip the sleeve X from one to the other of the gears V V′ or to maintain it in an intermediate idle position, I employ a horizontal rod or bar, a^2, disposed at one side of the crane and pivoted at its rear end to the upper end of the vertical arm b^4 of a bell-crank lever, c^4, which is in turn pivoted at its corner to the rear part of the crane, the forked rear end of the horizontal arm d^4 of such lever engaging a peripheral groove, e^4, in the sleeve X.

The front end of the rod a^2 is pivoted to a hand-lever, b^2, the upper end of which is pivoted to the outer end of a horizontal oscillating lever, c^2, such lever being mounted upon a pivot, d^2, in the head of the crane, and being forked at its inner end to engage a peripheral groove, e^2, in a sleeve or tubular hub, f^2, which loosely encompasses the shaft m, to be explained, between the arms E′ E′ of a yoke, D′, to be also explained, this sleeve f^2 having notches g^2 g^2 in each end to operate with spurs h^2 h^2, projecting from the inner ends of twin bevel-gears i^2 i^2, mounted loosely upon the shaft m, and prevented from end-play upon it by the arms E′ E′ above referred to, the sleeve being connected with the shaft by a spline-and-groove connection and constituting a double-acting clutch, by means of which one or the other of such gears may be compelled to rotate with the shaft, while the other is idle. By swinging the hand-lever b^2 in one or the other direction longitudinally of the crane the position of the clutch X with respect to the gears V V′, and consequently the movements of the table, are controlled.

The dressing-tools are, in the present instance, two in number and shown at a a, and are secured, each in a suitable manner, to a stock, b, the two stocks b b being formed upon or secured to opposite ends of a horizontal beam, c, which in turn is suspended at each end from an open horizontal frame or head, d, by vertical links e e e e in such manner that the beam and tools are capable of a common swinging motion upon such head from a horizontal to a sloping position in either direction.

The head d is connected with and carried by a carriage, f, consisting of a yoke-shaped plate composed of a horizontal bar, g, and pendent ears h h at each end, and this carriage is mounted upon, and so as to slide to and fro on, a horizontal beam, i, secured at its ends in the lower ends of ears j j, depending from a carrier, k, which is also yoke-shaped, the upper horizontal portion or plate of this carrier being shown at l as composed of arms l^6 l^6, extending horizontally from opposite sides of a central head or disk, l^4, surrounding loosely the lower part of a vertical shaft, m, which in turn is supported in bearings n o, making part of an open head, p, which constitutes the front of the horizontal frame or beam J, before named, the upper end of this shaft carrying a pulley, K, (before alluded to,) about which and the driving-pulley L, secured to the upper end of the shaft P, the band R traverses.

To the extreme lower end of the shaft m, I secure a disk, q, flat upon its under side, and to such under side I add a pendent wrist-pin, r, which enters a slot, s, in the bar q, before named, such slot being disposed practically at right angles to the axis of the beam i. Rotations of the disk q or crank-wheel impart reciprocating motions to the tool-carriage f to and fro of the beam i, thereby effecting the necessary traverses of the dressing-tools laterally of the table E.

The lower end of the head p of the beam or crane J terminates in an integral disk, t, the periphery of which is screw-threaded, as shown at u, and enters a corresponding female screw-thread, v, cut in the bore of a sleeve or tubular hub, w, which incloses the said disk. Rotations of the sleeve w in one or the other directions has the effect of raising or lowering it upon the stationary disk t. Hence, as the dressing-tools and their actuaries are carried by or suspended from this sleeve, it becomes the means of effecting the vertical adjustment of such tools, which is necessary, in order not only to permit of introduction and removal of the skins, but to vary the degree of pressure which they exert upon such skins.

The manner of suspending the dressing-tools from the adjusting-sleeve w is as follows: Within the lower part of such sleeve I dispose a disk, x, the hub y of which loosely encompasses the shaft m, the said disk x resting at its periphery upon an annular ledge, z, formed interiorly upon the lower part of the sleeve. A collar, a', (preferably adjustable,) is secured to the shaft m and resting upon the top of the hub y. Therefore the weight of the said shaft m and its crank wheel or disk t is supported by the disk x, and when the sleeve w is lowered the shaft and disk follow it.

To prevent rotation of the disk x by and with the shaft m, and yet permit of its vertical movements upon such shaft, I erect upon such disk two or more pins or posts, b' b', which enter and play within corresponding passages, c' c', in the disk t. For convenience in rotating the sleeve w, I secure to its periphery an annular outstanding hand-rail, m^4.

To change the position of the carrier k axially upon the shaft m at the pleasure of the attendant while the machine is at work, which is essential in order to give direction to the stroke of the tools at any angle radially from such shaft, I employ a circular hand-rail, d', which is secured to the periphery of an annular plate or flat ring, e', disposed upon the top of the head l^4 of the tool-carrier and surrounding an annular ledge, f^4, erected upon the latter, and by which the ring e' is retained in position and permitted slight rotary slip upon the said head l^4, the said ring e' being connected with the carrier k as follows: To the inner periphery of such ring I secure a rigid

horizontal spur, g', terminating at its inner corners in axially-arranged projecting horns, h' h', while operating with this spur g' I employ two latches, i' i', which are disposed upon opposite sides of the spur g' in the same horizontal plane, and pivoted each at its outer end by a pivot, j', to the top of the head l^4, the two latches being crowded toward each other and in close proximity to the spur g' (but not touching the latter) by springs g^5 g^5, and griping at their outer ends the periphery of the disk x.

To prevent possibility of the rotary motions of the carrier k as the latter is changed in position axially upon its support to change the direction of the stroke of the tools imparting corresponding movements to the sleeve w, I employ a thin washer, k', which I interpose between the two, as shown in the drawings, this washer being secured to the under side of the disk or head x in any suitable manner, (by screws shown in the accompanying drawings.)

It is essential in machines of this class that means be provided for suspending the functions of either one of the dressing-tools and allowing the opposite tool alone to act upon the skin, and I adapt the beam to rock in its bearings, and I cut in it a longitudinal groove, l', which engages a spline, m', extending inward from the bore n' of an eccentric, o', which is deposited loosely in a pocket, p', in each of the ears h of the carriage f, before named, and loosely surrounds the beam. The connection between the eccentrics o' o' and the beam i is such that the former may slide longitudinally upon but cannot rotate about the latter.

The head d is supported upon the eccentrics and connected with them by horizontal rods q' q', which span the two side plates, r' r', of such head and bear against the top and bottom of each eccentric, the two eccentrics being arranged diametrically opposite each other, and being so situated upon the beam i and with respect to the head d that when one end of such head is depressed and the tool carried by it lowered into contact with a skin upon the table the opposite end of such head is raised and the tool carried by it elevated above the skin. When the two eccentrics are in a mean position the head d assumes a horizontal position, and both tools stand at such an elevation as to act alternately upon the skin.

To each end of the beam i, outside of the carrier k, I secure a crank or hand wheel, s', for convenience in rocking the beam when it is desired to change the head and tools from a mean horizontal position in one or the other direction.

It will be seen that when either of the dressing-tools are lowered into working position the links by which it is suspended from the head d are vertical. For this reason a slight vibration of such links past a perpendicular will not perceptibly raise or lower the adjacent tool.

To change the relative heights of the two dressing-tools as the carriage f reaches the extreme of its traverse in either direction, in order to raise above the skin the one last in contact with and lower the opposite or outgoing tool into contact with such skin as the carriage begins its traverse in the opposite direction, I pivot the beam c centrally to the lower end of a slider or tubular head, t', which incloses and slides upon the beam i within the head d, and carries at its upper part a horizontal plate, u', in which is created a slot, v', to receive the wrist-pin depending from the under side of the disk or head q, before mentioned. The form of the slot v' and its position relatively to the carriage f and its slot s are such that the wrist-pin r during the rotations of the disk q has no effect upon the head to move it upon the beam i until the carriage is on the point of completing its traverse, when the stud acts upon the adjacent portion of such slot v' and swings the beam c upon its supporting-link to the opposite extreme, the result being that as the carriage completes its traverse the ingoing tool is raised from off the skin and the opposite tool lowered into contact with it. The slot v' is of the shape shown in Fig. 11 of the accompanying drawings—that is to say, it is straight throughout its extent, with the exception of a small central portion, w', and is arranged parallel with the seat s of the carriage f. The central portion, w', of the slot v' is oblique with respect to the remainder, and the extent or angle of this obliquity is such as to effect the requisite longitudinal movement or swing of the beam c.

To effect the requisite movements of the crane or beam J and tool carrying and operating mechanism laterally of the table in order to operate upon a skin from side to side thereof, I employ a horizontal shaft, B′, the front part of which is mounted in a bearing in the hub C′ of a yoke, D′, the arms E′ E′ of which are pivoted to the shaft m within the head of the crane J, the extreme front end of the shaft B′ having secured to it a bevel-gear, F′, which engages the gears i^2 i^2, before named.

The rear end of the shaft B′ is screw-threaded, as shown at k^2, and screws through a nut, l^2, swiveled to the top of a post or bracket, m^2, extending from the side of the standard D. The sleeve f^2, when in an idle position intermediate between the gears i^2 i^2, revolves with the shaft without effect upon such gears. When it is desired to impart swinging motions to the crane and the dressing-tools laterally of the table in either direction, recourse is had to the hand-lever b^2, and by swinging this lever upon its fulcrum laterally of the crane in one or the other direction the lever c^2 is rocked upon its fulcrum, and one of the gears i^2 i^2 is made to rotate with the shaft m, and in its turn rotate the gear F′ and shaft B′ in a corresponding direction, the screw-threads of such shaft having the effect of advancing or retracting the crane with respect to the post m^2,

according to the direction in which the hand-lever is moved. The tension of the rod a^2 serves to return the clutch f^2 to its idle position.

It will thus be seen that the hand-lever b^2 controls the bodily movement of the dressing-tools and their carrier laterally of the table, and also the traverses of the table upon its ways. It will also be seen that the method of effecting the adjustment of the tool-carrier axially upon the shaft m to change the direction of stroke of the dressing-tools by means of the hand-rail d' and ring e' with the spur g' and latches i' i' is very simple and effective. When it is desired to change such direction of the stroke of the tools the attendant seizes the hand-rail and rotates it in the desired direction, the result being that one of the latches takes hold upon the carrier k and rotates the latter with the hand-rail, while the opposite latch slips idly over such carrier. When the carrier has been rotated to the desired extent the attendant's hold upon the hand-rail is released and the carrier is prevented from rotation in either direction by the latches.

In lieu of a table adapted to move upon suitable ways in right lines, as stated, a rotary table may be employed mounted upon a vertical axis, and having upon its shaft or upon its periphery an annular rack to be operated by a pinion suitably connected with the shaft m, before named.

In operating with this machine piles of untreated skins are to be placed in positions accessible to each end of the table, and preferably two of such skins are to be placed upon the table at once. An attendant stands at each end of the table to take care of the skins and a third occupies a position in front of the tool carrying and operating mechanism. The attendant at each end of the table now places a skin upon it and a third attendant seizes the hand-rail d' and lowers the sleeve f^2 upon the disk or head q until the lowermost dressing-tool touches a skin, it being understood that prior to placing the skins upon the table the crane has been run to its greatest extreme in one direction and the dressing-tools elevated sufficiently above the table to permit of application of the skins. The pulley K and shaft m are now put in rotation and the dressing-tools caused to travel to and fro of the beam i, the foremost tool being lowered into contact with the skin and exerting the proper wiping action upon the skin throughout its stroke. The attendant at the front of the machine now seizes the hand-lever b^2 and by means of it he is enabled to control the backward and forward movements of the table to the extent necessary to enable the tools to go over each skin longitudinally of such table, and by the swinging lever to control the swinging movements of the crane, which are necessary to cause the tools to travel over the skin laterally of such table, while by swinging the hand-lever both longitudinally and laterally of the same he is enabled to both move the table and the crane, thereby causing the dressing-tool to move obliquely with respect to the table and skins. By means of the hand-rail d' he is enabled, as before stated, to change the direction of the stroke of the tools radially about the axis of support, while by means of the hand-rail m^4 and sleeve or nut w he is enabled to govern the degree of pressure of the tools upon a skin. By means of the rocking capabilities of the beam i he is enabled at pleasure, while the machine is in operation, to change the relative heights of the dressing-tools—that is, to lower either of them into action and raise the opposite one out of action or permit both to operate alternately upon a skin. As one skin is finished the table is caused to move in a direction to present the opposite skin to the action of the dressing-tools and the first is removed by the attendant at that end of the table and a fresh one substituted, and this operation is repeated *ad libitum*.

I consider my present invention to embrace among other features the following elements in a leather-dressing machine, viz: a horizontal table to receive the skins, adapted to traverse suitable ways in right lines or rotate upon a vertical axis, and a horizontal beam or crane outstretching over the table and pivoted at rear by a vertical pivot to the machine-frame, and carrying at its front end the tool supporting and operating mechanism, and adapted to carry such tools in a circular sweep laterally or radially of said table.

In lieu of the hand-rails m^4 and d', an equivalent would be spokes extending radially from the ring-plate e' and the sleeve w.

I claim—

1. In combination with carrier k and the tool-carriage, the shaft m, on which said carrier is axially movable, hand-rail d', movable ring e, provided with spur g', and spring-pressed pivoted latches i' i', connected to head l^4 of the tool-carriage and arranged to grip the periphery of a disk on said shaft m, substantially as set forth.

2. In a leather-dressing machine, the combination of fixed disk or head x with the tool-carriage capable of rotary adjustment, and the latches i' i', connected to said tool-carriage and engaging the periphery of said head, substantially as set forth.

3. In a machine for treating hides or leather, the combination of a vertically-adjustable crane with a tool-carriage which is vertically adjustable as a whole by the mechanism, substantially as described, independently of the adjustment of said crane, substantially as set forth.

4. The combination of crane J and screw-threaded disk t, suspended therefrom, with the screw-threaded sleeve w and the tool-carriage suspended from said sleeve, the rotation of said sleeve on said disk serving to adjust said tools vertically, substantially as set forth.

5. In a leather-dressing machine, the com-

bination of guide-beam *i* with tool-supporting beam *c* and slider or head *t'*, which is attached to beam *c*, and has motion on beam *i* longitudinally of the latter, substantially as set forth.

6. In combination with guide-beam *i*, tool-supporting beam *c*, and tubular head *t'*, provided with slotted plate *w'*, the disk or head *q*, attached to shaft *m* and provided with wrist-pin *r*, which enters the slot of said plate and causes the tool-carrying beam *c* to move backward and forward under beam *i* as the head *q* rotates.

7. The combination of beam *i*, adapted to rock in its bearings, with eccentrics *o' o'*, surrounding said beam and having spline-and-groove connections therewith, carriage *f*, provided with pockets for said eccentrics, horizontal rods *q' q'*, and beam *i*, substantially as set forth.

8. The combination of beam *i*, eccentrics *o' o'*, which surround the same, carriage *f*, provided with attachments which embrace said eccentrics, and head *d*, from which the tool-carrying beam is suspended by links, said head *d* being supported by said eccentrics, substantially as set forth.

9. The combination of the disk or crank-wheel *q* with its wrist-pin *r*, the tool-carriage *f*, mounted and sliding upon the beam *i*, which is supported by the yoke frame or carrier *k*, the head *d* constituting a suspensory to the dressing-tools, and upheld by the carriage *f* and the hub or slider *t'*, with its slotted plate or extension *w'*, in which the wrist-pin operates.

10. As a means of controlling the lateral adjustment of the swinging crane, a shaft swiveled at one end to the crane, and having at its opposite end or any convenient point a peripheral screw-thread adapted to be screwed through a nut swiveled to the machine-frame, the shaft being rotated in either direction by means under the control of the attendant, substantially as explained.

11. The combination of the suspended hand-lever b^2, the shipper-rod a^2, actuating the clutch mechanism which controls the traverses of the table, and the oscillating lever c^2, which controls the clutch mechanism that effects the lateral adjustment of the crane, the hand-lever operating when swung in one or the other direction longitudinally of the crane to govern the movements of the table, and when swung in one or the other direction laterally of the crane operating to govern the swinging movements of the crane upon its support, and when moved both longitudinally and laterally operating to both swing the crane and move the table, substantially as stated.

12. The ring-plate *e'*, with its hand-rail *d'*, and containing a friction clutch or device to grasp the tool-carrier when the hand-rail is rotated and to seize hold of a disk or other stationary part of the crane when the hand-rail is at rest, substantially as hereinbefore described.

13. The hand-rail *d'* and a clutch operated thereby, in combination with the tool-carriage and a disk attached to the crane, said clutch being arranged to grasp the tool-carrier when the hand-rail is rotated and to seize hold of said disk when the hand-rail is at rest, substantially as set forth.

14. The conical bushings T T, in combination with the crane, the shaft P, and the standard D, substantially as and for the purpose set forth.

15. In combination with the crane and its shaft *m*, the rod or shaft B', screwing at its rear end through a nut swiveled to a stationary bracket or post of the machine-frame, and at its front end mounted in bearings in the free end or head of the crane, and having affixed to it a bevel-pinion, the twin gears i^2 i^2, clutch-sleeve f^2, splined upon the said shaft *m*, and oscillating shipper-lever c^2, operating such clutch, substantially as explained.

In testimony whereof I affix my signature in presence of two witnesses.

LORING J. BAKER.

Witnesses:
H. E. LODGE,
F. G. SIMPSON.